

**VULCAN**

OPERATING, INSTALLATION,  
SERVICE & PARTS  
MANUAL FOR  
ELECTRIC RESTAURANT RANGES  
MODELS: E-36 SERIES & E-60 SERIES



E-36 RANGE



E-60 RANGE



## **IMPORTANT**

### **OPERATING, INSTALLATION AND SERVICE PERSONNEL**

Operating information for this equipment has been prepared for use by qualified and/or authorized operating personnel.

All installation and service on this equipment is to be performed by qualified, certified, licensed and/or authorized installation or service personnel, with the exception of any marked with a ? in front of the part number.

Service may be obtained by contacting the Factory Service Department, Factory Representative or Local Service Agency.

### **DEFINITIONS**

#### **QUALIFIED AND/OR AUTHORIZED OPERATING PERSONNEL**

Qualified or authorized operating personnel are those who have carefully read the information in this manual and are familiar with the equipment's functions or have had previous experience with the operation of the equipment covered in this manual.

#### **QUALIFIED INSTALLATION PERSONNEL**

Qualified installation personnel are individuals, a firm, corporation or company which either in person or through a representative are engaged in, and are responsible for:

1. The installation of gas piping from the outlet side of the gas meter, or the service regulator when the meter is not provided, and the connection and installation of the gas appliance. Qualified installation personnel must be experienced in such work, be familiar with all precautions required, and have complied with all requirements of state or local authorities having jurisdiction. Reference in the United States of America - National Fuel Gas code ANSI Z223.1 (Latest Edition) In Canada-Canadian Standard CAN1-B149.1 NAT. GAS (Latest Edition) or CAN1-B149.2 PROPANE (Latest Edition).
2. The installation of electrical wiring from the electric meter, main control box or service outlet to the electric appliance. Qualified installation personnel must be experienced in such work, be familiar with all precautions required, and have complied with all requirements of state or local authorities having jurisdiction. Reference: In the United States of America-National Electrical Code ANSI NFPA No. 70 (Latest Edition). In Canada-Canadian Electrical Code Part 1 CSA-C22.1 (Latest Edition).

#### **QUALIFIED SERVICE PERSONNEL**

Qualified service personnel are those who are familiar with Vulcan equipment who have been endorsed by the Vulcan-Hart Corporation. All authorized service personnel are required to be equipped with a complete set of service parts manuals and stock a minimum amount of parts for Vulcan equipment.

### **SHIPPING DAMAGE CLAIM PROCEDURE**

For your protection, please note that equipment in this shipment was carefully inspected and packed by skilled personnel before leaving the factory. The transportation company assumes full responsibility for safe delivery upon acceptance of this shipment.

#### **If shipment arrives damaged:**

1. **VISIBLE LOSS OR DAMAGE** — Be certain this is noted on freight bill or express receipt and signed by person making delivery.
2. **FILE CLAIM FOR DAMAGES IMMEDIATELY** — Regardless of extent of damage.
3. **CONCEALED LOSS OR DAMAGE** — If damage is unnoticed until merchandise is unpacked, notify transportation company or carrier immediately, and file "concealed damage" claim with them. This should be done within (15) days of date of delivery is made to you. Be sure to retain container for inspection.

We cannot assume responsibility for damage or loss incurred in transit We will, however, be glad to furnish you with necessary documents to support your claim.

**PLEASE RETAIN THIS MANUAL FOR FUTURE REFERENCE**

## **IMPORTANT NOTES FOR ALL VULCAN APPLIANCES**

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1. These units are produced with the best possible workmanship and material. Proper installation is vital if best performance and appearance are to be achieved. Installer must follow the installation instructions carefully.
2. Information on the construction and installation of ventilating hoods may be obtained from the "Standard for the installation of equipment for the removal of smoke and grease laden vapors from commercial cooking equipment," NFPA No. 96 (latest edition) available from the National Fire Protection Association, Battery March Park, Quincy MA 02269.
3. For an appliance equipped with a flexible electric supply cord, the cord is equipped with a three prong (grounding) plug. This grounding plug is for your protection against shock hazard and should be plugged directly into a properly grounded three prong receptacle. Do not cut or remove the grounding prong from this plug. If the appliance is not equipped with a grounding plug, and electric supply is needed, ground the appliance by using the ground lug provided (refer to the wiring diagram).

### **(FOR GAS APPLIANCES ONLY)**

4. Do not obstruct the air flow into and around the appliance. This air flow is necessary for proper combustion of gases and for ventilation of the appliance. Provisions for ventilation of incoming air supply for the equipment in the room must be in accordance with National Fuel Gas Code ANSI Z223.1 (latest edition).
5. Do not obstruct the flow of flue gases from the flue duct (when so equipped) located on the rear (or sides) of the appliance. It is recommended that the flue gases be ventilated to the outside of the building through a ventilation system installed by qualified personnel.
6. For an appliance equipped with casters, (1) the installation shall be made with a connector that complies with the Standard for Connectors for Movable Gas Appliances, ANSI Z21.69 (latest edition), and Addenda, Z21.69a (latest edition), and a quick-disconnect device that complies with the Standard for Quick-Disconnect Devices for Use With Gas Fuel, ANSI Z21.41 (latest edition), and Addenda, Z21.41a (latest edition) and Z21.41b (latest edition), and (2) adequate means must be provided to limit the movement of the appliance without depending on the connector and the quick-disconnect device or its associated piping to limit the appliance movement.  
If disconnection of the restraint is necessary, reconnect this restraint after the appliance has been returned to its originally installed position
7. The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.45 k Pa).
8. The appliance must be isolated from the gas supply system by closing its individual manual shutoff valve during any pressure testing of the gas supply system at test pressures equal to or less than 1/2 psig (3.45 k Pa).

## **CAUTIONS**

### **FOR YOUR SAFETY**

**DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS  
IN THE VICINITY OF THIS EQUIPMENT OR ANY OTHER APPLIANCE.**

- 1. KEEP THE APPLIANCE FREE AND CLEAR FROM ALL COMBUSTIBLE SUBSTANCES.**
- 2. IN THE EVENT A GAS ODOR IS DETECTED, SHUT UNIT(S) DOWN AT THE MAIN SHUTOFF VALVE AND CONTACT THE LOCAL GAS COMPANY OR GAS SUPPLIER FOR SERVICE.**
- 3. POST IN A PROMINENT LOCATION, INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE SMELL OF GAS IS DETECTED. THIS INFORMATION MAY BE OBTAINED FROM A LOCAL GAS SUPPLIER.**



## **WARNING:**

**DO NOT SPRAY LIQUIDS OR VAPORS ON OR  
NEAR EQUIPMENT UTILIZING ELECTRICITY**

## **CAUTION**

From the termination of the appliance flue vent to the filters of the hood venting system, an 18 inch minimum clearance must be maintained.

Reference: ANSI/NFPA 96-1984 4-1.2.2.2. of the National Fire Protection Association, Inc., Batterymarch Park, Quincy, MA 02269, and National Building Code 1976 Sec. 1015.7b (2) of The American Insurance Association. Engineering and Safety Service, 85 John Street, New York, NY 10038.

# ELECTRIC RESTAURANT RANGES

# INDEX

Your Vulcan Electric Range is produced with the best possible workmanship and materials. Proper usage and maintenance will result in many years of satisfactory performance.

The manufacturer suggests that you thoroughly read this entire manual and carefully follow all of the instructions provided. Retain this manual for future use.

## DESCRIPTION

## PAGE

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# INSTALLATION INSTRUCTIONS

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## GENERAL INSTALLATION NOTES:

The area around units should be kept free and clear of all combustible materials. All units should be positioned for easy accessibility of servicing. All required wiring diagrams are located in the back section of this manual.

Vulcan's Restaurant Ranges are U.L listed under File No. E75870 and are for use on electric service of the characteristics specified on the name plate.

Units designed for 208 or 240 volt AC will operate satisfactorily within the voltage range of 197 to 219 and 228 to 252 VAC respectively. Units designed for 220/380 or 240/415 VAC require voltage supplies with grounded neutral (3-phase, 4 wire or 1-phase, 3 wire supply).

Units wired for 3-phase service may be changed to 1-phase or vice versa, by simply relocating two wires on the terminal block as shown on the wiring diagram and schematic decal which is attached to the unit.

The Vulcan equipment is produced with the best possible workmanship and material. Proper installation is vital if best performance and appearance is to be achieved. Please follow these instructions carefully:

1. Remove crating with care. Remove all woodworking, packing material and accessories.
2. Unit has been factory equipped and electrically connected for use with the specific electric supply indicated on the rating plate, check the electric supply available. If the two voltages (supply and equipment) do not agree, contact your dealer or Vulcan-Hart immediately without proceeding to the next step.
3. Uncrate High Shelf, Backguards, and/or VB-73 Broiler. In E-36-B and E-60-B series, slide the legs of the broiler inside the channels provided in the back of the range (in E-60 series, the broiler is mounted between the center and the right hand channel), until the (2) holes on each side line up. Use the bolts and nuts provided. In a similar way mount the backguard to the left side of the broiler.

**INSTALL THE HIGH SHELF** — The high shelf for this range is shipped knocked down and is included in the range crate.

The splasher back and heat shield are bolted together and shipped attached to the rear of the range.

The hardware required to assemble the shelf is packed in the oven.

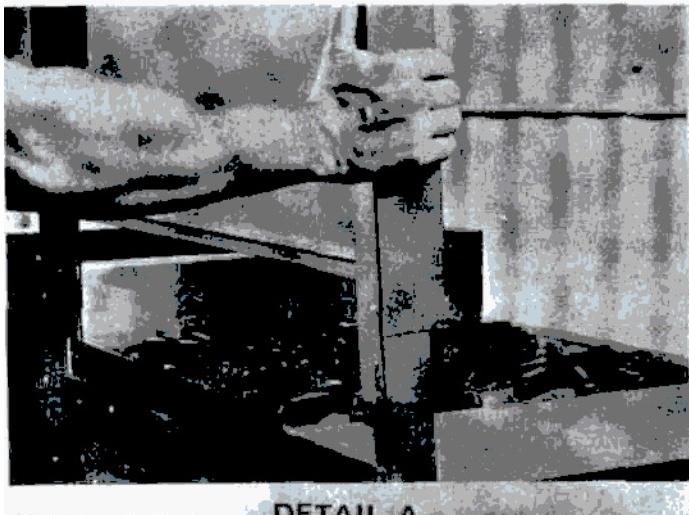
- Step 1** Remove the splasher back and heat shield from the rear of the range.
- Step 2** Remove the heat shield from the splasher back by removing two sheet metal screws.
- Step 3** With top cooking plates in their normal position assemble splasher back to range per detail A and fasten in place with 1/4-20 screws and nuts.
- Step 4** Place shelf in position on splasher as illustrated in detail B and fasten with 1/4-20 screws and nuts provided.
- Step 5** Assemble heat shield to splasher back per detail C — top edge of heat shield must be placed inside the rear top flange of the splasher back.

## CAUTION

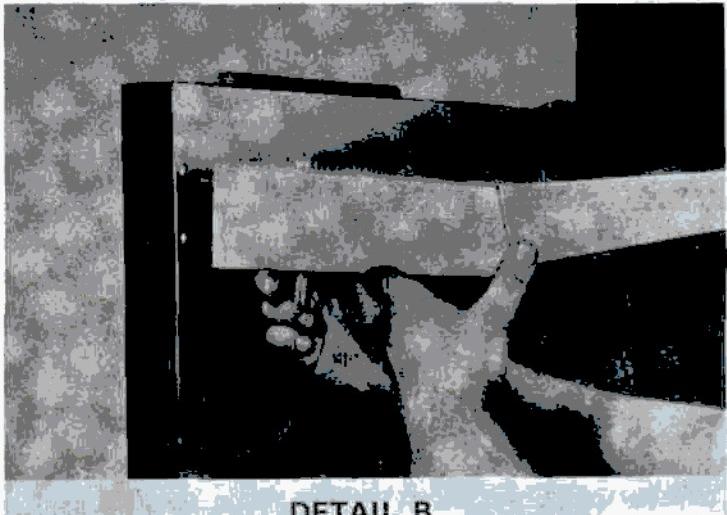
It is essential that the heat shield in the back of the high shelf be installed in such a way that the bent section at the bottom be inward, touching the rear wall of the range, thereby allowing the stack action of the double wall back splasher to draw air through the area below the top surface units.

4. On ranges equipped with VB-73 Broiler, bring the leads A1, A2, B1, and B2 (on 220/380 or 240/415 volt models, the leads are X, Y, N) which are connected to the broiler down and through the burner box to the switch panel compartment. Connect them to the appropriate circuit breaker or terminal block as shown on the wiring diagram.
5. Position the range in its final location. Bring conduit containing the proper supply wire (select the size and type of the field wire in accordance with national Electric Code suitable for carrying the equipment's rated amps and voltage. Use field wires suitable for 75°C on units carrying more than 80 amps), to the range through the knockout of the left side. Connect the supply leads to the field terminal block and the green, grounding lead to the labeled ground lug.
6. Using a carpenter level, placed on top of the range, adjust the feet of the bottom of each leg so that the equipment is level from front to back and side to side.
7. Turn the main power and range's breakers to on. The unit is now ready for operation. To place unit in operation, simply turn thermostat dial to desired setting (See Operating Instructions).

# INSTALLATION INSTRUCTIONS



DETAIL A



DETAIL B

Step No. 5 Assemble heat shield to splasher back per detail C — top edge of heat shield must be placed inside the rear top flange of the splasher back.



DETAIL C

# OPERATING INSTRUCTIONS

## THEORY OF OPERATION

These highly versatile medium duty electric ranges have been engineered and built to give years of satisfactory use. Vulcan Electric Restaurant Ranges are designed for nursing homes, plant cafeterias, churches, schools, restaurants, etc., normally preparing foods in quantities of 50 servings or less. Range is NOT designed for heavy duty application.

**1. SURFACE UNITS:** Solid surface units are French type cast iron 9 1/2" in diameter with clamped on sheath type 2000 W. heating elements. Most efficient when used with utensils having a maximum inside diameter of 10" or a minimum inside diameter of 9". Stock pots of 9, 12 and 16 qt. capacities are recommended for bulk cooking. Heavy Duty hi-speed tubular type surface units (2000 W) optional for use with fry pans and stock pots up to 10" O.D. or 16 qt. capacity.

**2. GRIDDLE:** The E36-F & FB and E60-F & FB ranges have a large double griddle (24" x 24") which has two (2) 3400 W heating elements. Each element is controlled by a thermostat with a range of 150°F to 500°F. A red signal light is mounted next to the control dial.

**3. OVENS:** Ovens are fully insulated, they are 26" wide x 22" deep x 12 1/2" high with an effective rack or deck area 25" wide x 20" deep. 20" x 22" "restaurant size" bake sheets or roast pans are recommended. Each oven is equipped with top and bottom heating elements. The top element has an infinite heat switch for directional heat control. The oven is controlled by 150°F to 550°F thermostat with a red signal light mounted next to the control dial. The oven has an input of 5000 W, 1250 W for the top element and 3750 W for the bottom element.

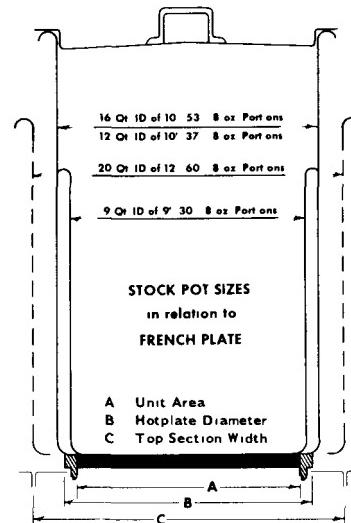
**4. BROILER:** The high shelf broiler (Model E36-B & FB, E60-B & FB) is equipped with two tubular heating elements independently controlled by two infinite heat switches. The grid and drip shield can be used in three different positions. A removable grease collector is provided. The broiler has a total input of 6000 W. A double deck 24" high shelf is mounted to the left of broiler on E60-B & FB ranges.

If power outage occurs, unit will automatically shut down. When power is restored" to line, unit will automatically resume normal functions, after unit has pre-heated for 5 minutes. However, if unit is left unattended during power outage, turn either the infinite switch knob for 220/380 & 208/240 volt or the 3 heat switch knob for 480 volt to the "off" position. When power is restored to lines, turn control knob back to "on" position. Unit will be pre-heated in 5 minutes and normal cooking operations can be resumed.

## SURFACE COOKING

Each of the solid surface units is 9Vz" in diameter, rated for 200 Watts and is controlled by an infinite heat switch. A solid surface unit will reach cooking temperature from room temperature in 5 to 7 minutes at a HI switch setting. The switches are arranged in pairs with the left switch controlling front unit and the right switch controlling the rear unit of the pair and are so marked.

Each dial is marked HI, MED, LO, MED-LO, VERY-LO HI is full heat and should be used to start cooking quickly and to bring water to a boil.



Some **DO'S** and **DO NOT'S** of surface cooking:

**DO** use utensils to fit the units (9" to 10" inside diameter)  
**DO** use flat bottomed, straight sided pots and pans.

**DO** use covers for stock pot work. Water will boil much sooner and much less heat is required for cooking in a covered container. Less water may be used thereby retaining vitamins and minerals in the food.

**DO** turn off units a few minutes before cooking is completed to use the heat stored in the plate.

**DO NOT** allow Surface Units to idle unloaded at HI switch settings. The hotplates will reach very high temperatures and this can cause the casting to warp or dome. Plates idled at 4, and turned to HI when loaded, will perform bulk cooking Jobs Just as rapidly, without damage to the units.

## NOTE: OPTIONAL HI-SPEED UNITS

Your range may be equipped, if so ordered, with one or more HEAVY DUTY HI-SPEED Units. While the Surface Cooking information above applies, there are some differences:

HI-SPEED Units are for quick heating and cooking. HEAVY DUTY HI-SPEED Units will preheat to cooking temperatures in 2 to 5 minutes.

# OPERATING INSTRUCTIONS

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## OVENS

E-36 Model Ranges have a single oven. E-60 Model Ranges have two separate ovens. Each oven is of the semi-directional type. Each oven is equipped with top and bottom heating elements and the top element is controlled by an infinite heat switch. Each oven is controlled by 150° to 550°F thermostat with a red signal light mounted adjacent to the control dial. Each oven has a total input of 5000 W, 1250 W for the top element and 3750 W for the bottom element.

**DIMENSIONS:** Each oven is 26" W x 22" D x 12 1/2" H, the effective cooking area of the deck or rack is 25" W x 20" D. Pans should be so placed as to be at least 1/2" from the walls and back and 2" from the door when closed.

**PAN SIZES:** The oven is designed for use with "restaurant" size bake sheets and roast pans and will perform properly when loaded with one of these 20" x 22" pans or sheets. It will accommodate 6" - 7" or 5" - 8" layer cake or pie pans. It is not designed to perform satisfactorily with an 18" x 26" pan or with 2 - 200 series (12<sup>3</sup>/4" x 20<sup>3</sup>/4") food service pans.

**CAUTION:** Never cover the oven deck or rack with aluminum foil. If either or both are covered with aluminum foil, the oven will not operate properly and the range may be damaged.

**PREHEATING:** The oven should be thoroughly preheated by setting the switch at HI and the thermostat to the recipe temperature for the product to be baked. When the signal light goes out, the oven is pre-heated. For full loads and delicate baked products, it may be desirable to allow the oven to cycle (signal light on and off) a second time before loading.

**BAKING:** Most products can be baked most efficiently directly on the deck with the top unit switch set between 3 and 5. Hard to brown products such as corn bread or biscuits may require a top switch setting of MED to HI. If both the oven deck and the oven rack are fully loaded, it will be necessary to switch the pans from rack to the deck and the pans from the deck to the rack, when approximately half the cooking time has elapsed. If this is not done, the bottom of products on the rack and the top of the product on the deck will not cook properly.

**ROASTING:** The meat should be placed on a rack in an open pan with sides sufficiently high to retain the drippings. Roasting may be done on the oven rack or the deck. For the best results, roasting should be done at the low temperatures of 200°F to 325°F recommended by the Department of Agriculture and the American Meat Institute. Most meats may be roasted with the switch set at HI. If heavy browning on poultry is not desired, the switch should be set between MED-LO and VERY-LO.

**NOTE:** The top oven element is not suitable for boiling. A high shelf Salamander Broiler is available as an accessory.

## GRIDDLES (E36-F & E60-F Models)

The griddle is made of polished steel plate. There is a 7/8" high edge around three sides of the griddle. The right side has a drip edge for drainage into the slide out grease collector mounted on the right side of the range. The griddle is heated by two 3400 Watt sheath type elements. Each element is individually controlled by a thermostat, adjustable from 150°F to 550°F. The temperature controls are located on the left and right sides of the control panel under the griddle. A signal light beside each control comes on until the selected temperature is reached or when it is being maintained.

**SEASONING:** Clean the griddle thoroughly and then apply a coat of cooking oil or fat. Preheat griddle to 400°F. When the fat smokes, wipe the griddle dry and apply another coating of fat, remove excess. Set the controls for the desired cooking temperatures. The griddle is ready for use.

**USE:** The griddle will preheat to 400°F in approximately 10 minutes or will come up to 400°F from a 300°F setting in 3 minutes. During breakfast you may set one control at 300°F for eggs and the other at 375°F for pancakes, bacon, etc. During lunch service, you might use the whole area at 350°F for hamburgers or set one side for hamburgers and the other at 400°F for minute steaks and grilled cheese sandwiches. Between serving periods long cooking foods, such as soup or stew may be simmered in a large container set on the griddle surface. If no grilled items are to be served, pans of food may be kept hot on the griddle at a setting of 150°F to 250°F.

# OPERATING INSTRUCTIONS

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## BROILER (Accessory)

The broiler, when provided, is of the High shelf type. E60-B or E60-FB ranges also have a 24" double high shelf mounted to the left of broiler.

The broiler has two 3000 Watt elements (one left and one right side). Each side (element) is individually controlled by an infinite heat switch. The switches are located on the switch panel at the right of the broiler. The top switch controls the element for the left half of the broiler, the bottom switch controls the element for the right half of broiler.

Each dial is marked HI, MED, LO, MED-LO, VERY-LO. HI is used for quick searing of steaks.

VERY-LOW is best suited for warming, melting cheese on pie, etc. The intermediate positions provide flexibility for a variety of products such as fish, liver, au gratins, etc. By setting the switch for one half of the broiler at HI and the other from MED to VERY-LO, a variety of broiler foods can be properly handled.

There are three rack slides. Most broiling should be done with rack in the top or center position. The lower position may be used for browning deep casseroles.

The rack is of wire rod type with a removable metal drip shield supported at the front of the grid. Grease drains from the drip shield into the bottom of the broiler and is collected in the removable grease receptical under the left bottom of broiler.

## CLEANING

All porcelain, Vulcan Permafinish, chrome or stainless steel should be cleaned with warm water and detergent.

Surface Units may be raised for cleaning.

**CAUTION:** Replace Surface Units in their original position in the Unit Support. Twisting or rotating of the Surface Units can damage wiring.

The DRIP TRAY under the surface units should be removed, washed, rinsed, dried, and replaced in the same positions.

The UNIT SUPPORTS are porcelain and may be cleaned, with proper care of the wiring, as recommended for the oven liner.

The OVEN LINERS and DECKS are porcelain and may be cleaned with water and detergent. If heavily soiled, ammonia or oven cleaner may be used to remove spillage of burned on sugar and grease.

**CAUTION:** Never cover the deck or rack with aluminum foil. If either or both are covered with aluminum foil, the range may be damaged and the oven will not operate properly.

The GRIDDLE should be scraped with a spatula after each use. Daily or as often as necessary, empty and wipe out the grease collector. Weekly, or as often as necessary, thoroughly clean the griddle surface. You may use a griddle screen or stone with a little grease, rubbing with the grain of the metal while it is still warm, or use water and detergent, with a steel brush. After each thorough cleaning, the griddle must be reseasoned.

Special care should be taken to avoid build up of caked grease under the drip edge and around the outside edges of the griddle.

**BROILER:** The grease receptical should be emptied as often as necessary and emptied and washed after each days use. The grid, drip shield, and grease receptical should be washed after each days use.

The inside bottom, back and sides of the broiler compartment should be cleaned, as often as necessary, with special care to clean the inside surface of the baffle across the front top of the broiler.

# TROUBLE SHOOTING

The following is intended to provide a guide for trouble shooting procedure and covers some of the more common problems with the equipment. As with any other equipment, the servicing personnel working on this equipment need to become familiar enough with the circuit and the components in order to be able to follow a logical sequence of trouble shooting and to repair malfunctions not mentioned in the following paragraphs.

The instruments necessary for trouble shooting:

- A. A.C. voltmeter to measure line voltages up to 500 volts.
- B. A.C. ammeter to measure live currents.
- C. Accurate thermometer to measure the temperature.

In the following paragraphs, the voltmeter is used to measure the voltage between (2) phases on 208, 240 and 480 volts, and between the phase and the neutral on 220/380 and 240/415 volt supplies. Do not measure the voltage with respect to the chassis ground. For the sake of simplicity, the measured voltage is referred to 208 volt, assuming that the supply is 208 volt. When the supply is 220, 240 or 480 volt, the measured voltage should also be 220, 240, 480 volt. Refer to the appropriate wiring diagram packaged in a separate envelope marked wiring diagrams shipped with this unit.

With the main power, range's breakers, thermostat & the infinite switches turned to "ON".

## E-60 & E-60-F MODELS

PROBLEM	CORRECTIVE ACTION
Range is completely dead	Check the main disconnect switch & the supply leads
No heat in either of ovens but top surface elements are working.	Check Voltage between leads #7,16 & 23 on the circuit breakers. If 208 volt, check lead #7 for proper connection to the breaker and the thermostat If no voltage, measure between leads #1 & 4 on the same breakers. If 208 volt, the breaker is either off or defective. If no voltage, check for proper connection to the terminal block and the main supply voltage
No heat in left oven, but right oven & top surface elements are working.	Check voltage between leads #16&19. If no voltage, check for bad connection on leads #7 or 19. If 208 volt, check voltage between lead #16 and 17 (thermostat) If no voltage, thermostat may be defective. If 208 volt, check for bad connection in leads #17 & 24
No heat in right oven, but left oven & top surface elements are working.	Follow step 3 above except lead #18 replaces #17.
Only the top element of the oven not working.	Check voltage between leads #26 & 27 on the infinite switch. If 208 volt, measure at the element terminals. If 208 volt, the element is defective. If no volt, check for bad connection on leads #26 & 27. If 208 volt, measure voltage between L1 & L2 terminal of the infinite switch. If 208 volt, the switch is defective. If no volt, check for bad connections in leads #22, 23 & 24.
Only the element of the bottom oven not working.	Check voltage between leads # 16 & 17 (or 16 & 18 for right oven) on the element terminals. If 208 volt, the element may be defective. If no volt, check for bad connection between leads #16 & 24. If 208 volt, check for bad connection in leads #17 or 18. If no voltage, check for bad connection in lead #16 or the thermostat terminals.

## TROUBLE SHOOTING (Continued)

PROBLEM	CORRECTIVE ACTION
A top round element is not working.	<p>Measure voltage between HI &amp; H2 terminals of the infinite switch. (With switch in HI position)</p> <p>If 208 volt, check for defective element or their connecting leads.</p> <p>If no volt, check the voltage between L1 &amp; L2 terminals of the same switch.</p> <p>If 208 volt, the switch is defective.</p> <p>If no volt, check for bad supply connection to the L1 &amp; L2 terminal.</p>
A griddle element is not working.	<p>Check voltage between leads #37 &amp; 44 (or 38 &amp; 45) on the griddle element terminals.</p> <p>If 208 volt, the griddle element is defective.</p> <p>If no volt, measure between #37 &amp; 44 (or 38 &amp; 45).</p> <p>If 208 volt, the thermostat is defective.</p> <p>If no volt, check for bad connections in the leads or thermostat terminals.</p>
The circuit breaker trips as soon as the power is turned on.	<p>The immediate tripping of the circuit breaker is an indication of a short circuit (either to ground or between the two phases.)</p> <p>With the power OFF, check the resistance between each phase &amp; the chassis and between the phases with an ohmmeter (or continuity tester).</p>
The circuit breaker trips after the range is operating for at least a few minutes	<p>The slow tripping of the circuit breaker is an indication of overload in the particular circuit. The cause of overload can be due to:</p> <ul style="list-style-type: none"> <li>a. Wrong use of element e.g. using a 208 volt element in a 240 volt circuit would increase the current by 1.15 times. Check the voltage rating stamped on the element.</li> <li>b. Partially defective element; measure the amp in the suspicious element and compare with the expected value which can be easily calculated by dividing the watt rating of the element (see the wiring diagram) over the supply voltage e.g., for a 208 volt french plate the amp. reading would be <math>\frac{2000 \text{ watt}}{208 \text{ volt}} = 9.6 \text{amps}</math></li> <li>c. Partially defective breaker; measure the current (amps) going through the suspicious breaker with all elements turned fully on. If the reading does not exceed 50 amps and the breaker trips, replace the breaker.</li> </ul>

# TROUBLE SHOOTING (Continued)

## E-36 & E-36-F MODELS

PROBLEM	CORRECTIVE ACTION
The range is completely dead.	Check the main disconnect switch & the supply leads.
No heat in the oven, but top surface elements are working.	Check voltage between leads #9 & 7 on breaker terminal. If no volt, the breaker (or breakers) is either off or defective. If no volt, check for main supply power and connections. If 208 volt, check voltage between #9 & 12 on the thermostat. If 208 volt, check for bad connection in leads #9,12 & 26. If no volt, the thermostat may be defective.
Only the bottom element of the oven not working	Check voltage between #9 & 12 on the element terminal. If 208 volt, the element may be defective. If no volt, check for bad connection in lead #12.
Only the top element of the oven not working.	Check voltage between leads #13 & 14 (H1 & H2) terminals of the infinite switch.) If 208 volt, check for defective element or bad connection in leads # 13 & 14. If no volt, check voltage between terminals L1 & L2 of the same switch. If 208 volt, the switch is defective. If no volt, check for bad connection in leads #8 & 26.
Top round element is not working.	Measure voltage between H1 & H2 terminals of the infinite switch (with switch in HI position.) If 208 volt, check for defective element or their connecting leads. If no volt, check the voltage between L1 & L2 terminals of the same switch. If 208 volt, the switch is defective. If no volt, check for bad supply connection to the L1 & L2 terminals.
The griddle element is not working.	Check voltage between leads #20 & 21 (or 19). If 208 volt, measure voltage between #21 & 28 on thermostat terminal. If 208 volt, the thermostat is defective. If no volt, check for bad connection to the breaker or defective breaker.
The circuit breaker trips as soon as the power is turned on.	The immediate tripping of the circuit breaker is an indication of a short circuit (either to ground or between the two phases.) With the power OFF, check the resistance between each phase & the chassis and between the phases with an ohmmeter (or continuity tester.)
The circuit breaker trips after the range is operating for at least a few minutes.	The slow tripping of the circuit breaker is an indication of overload in the particular circuit. The cause of overload can be due to: a. Wrong use of element e.g. using a 208 volt element in a 240 volt circuit would increase the current by 1.15 times. Check the voltage rating stamped on the element b. partially defective element; measure the amp in the suspicious element and compare with the expected value which can be easily calculated by dividing the watt rating of the element (see the wiring diagram) over the supply voltage e.g., for a 208 volt french plate the amp reading would be: $2000 \text{ watt} = 9.6 \text{ amps}$ $\frac{2000}{208 \text{ volt}}$ c. Partially defective breaker; measure the current (amps) going through the suspicious breaker with all elements turned fully on. If the reading does not exceed 50 amps and the breaker trips, replace the breaker.

112674-13

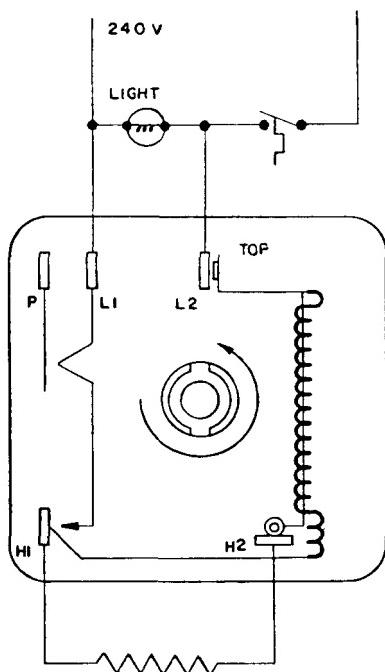
# PARTS DESCRIPTION & REPLACEMENT

**WARNING:** Turn the main disconnect switch to "off" before servicing the equipment. Reconnect the leads to the replaced component exactly as to the original (refer to the wiring diagrams for each model).

## A. Switch Panel - see pages 15 & 16

**Item 1** - Infinite switch. A DPST cycling switch varies, according to its setting, the percent on-time of the output as shown below.

DIAL SETTING	PERCENT ON-TIME
HI	100
MED	46
LO	37
MED-LO	27
VERY LO	7
OFF	0



**Item 2** - The load control, as shown schematically, is connected in series with the thermostat, thus providing variable rate of temperature rise in the top section of the oven. The setting of the infinite switch would need to be lower on products which require longer cooking time in order for the temperature to penetrate into the product. To replace the switch, remove the knob and the locknut. To reinstall, make sure that the dimples on the face of the switch fall in the slot of the switch panel. The load controls for the french plates are the same as described above except for the fact that the power is applied directly to the input terminal of the switch rather than through a thermostat.

**Item 3** - Thermostat - A SPST snap switch controls the temperature of the oven or griddle. The normally closed contacts of the thermostat provide power to the elements (directly to the griddle and the oven bottom elements and

through the infinite switch to the oven top element). Once the desired set temperature is reached, the thermostat contacts open, de-energizing the element. To replace the thermostat remove the bulb (inside the retaining clips in the oven and under the thermostat clamp in the back of the griddle plate). Loosen the (2) screws mounting the thermostat to the switch panel and pull the thermostat and its capillary out.

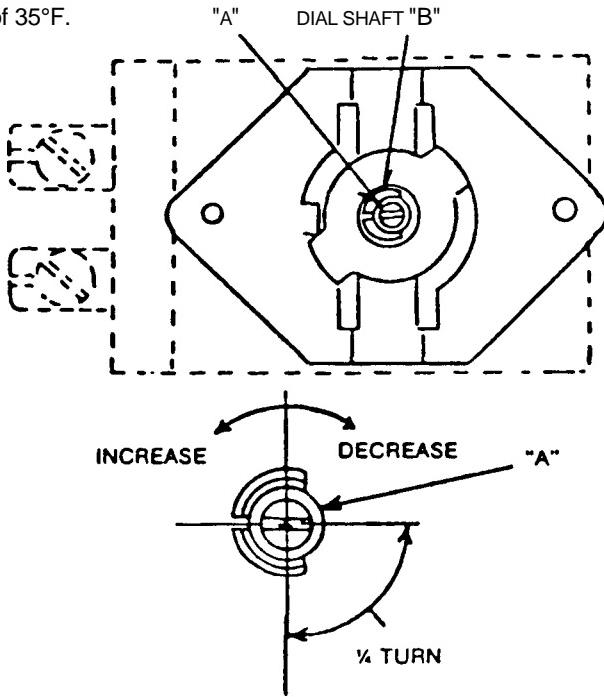
### Thermostat Calibration Check:

Use a calibrated potentiometer with a thermocouple located in the center of the oven rack. Set the thermostat knob to 350°F, allow adequate time for the temperature to stabilize. If the potentiometer reading is within  $\pm 15^{\circ}\text{F}$  of the thermostat setting, the oven is considered to be within the range of acceptable calibration and further adjustment is not necessary.

### Thermostat Calibration Adjustment:

Remove knob from dial shaft B. Turn adjustment screw clockwise to decrease temperature and counterclockwise to increase temperature.

NOTE: 1/4 turn of adjustment screw represents a temperature shift of 35°F.

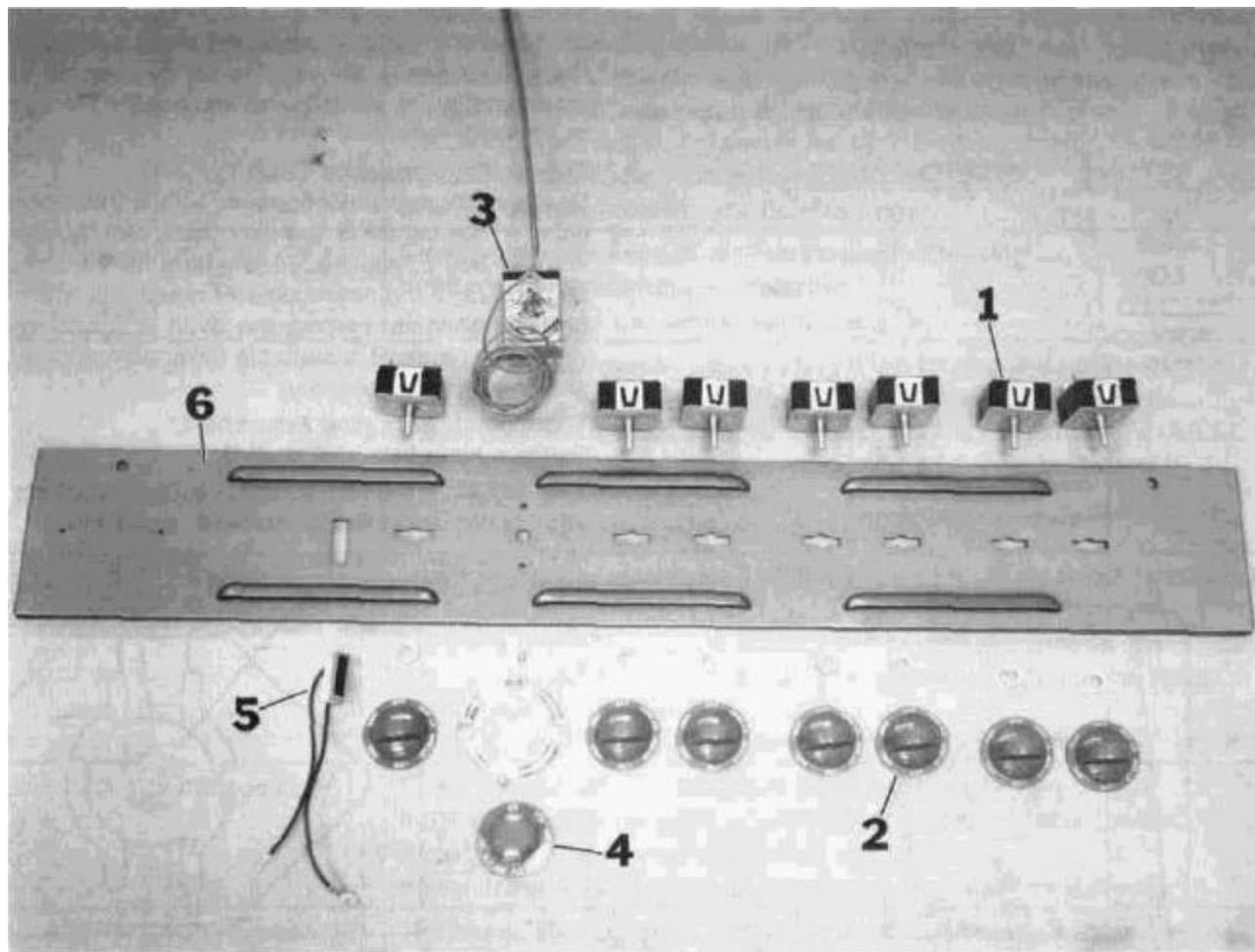


### THERMOSTAT CALIBRATION

**Indicator Lights:** The neon indicator light goes "on" when the thermostat, mounted next to it, is energized (calling for heat) and will go "off" when the desired set temperature is reached. To replace the light, simply press it out from the switch panel.

**B. Element Assemblies** - Pages 21, 22, 26, 27 & 28. Show the detail of the components in each element assembly. To replace an element, the element clamps need to be removed or opened up to allow removal of the element.

# REPLACEMENT PARTS LIST



## SWITCH PANEL ASSEMBLY 208 OR 240 VOLT

USED ON

E-36 SERIES WITH OR WITHOUT SUFFIX "B"

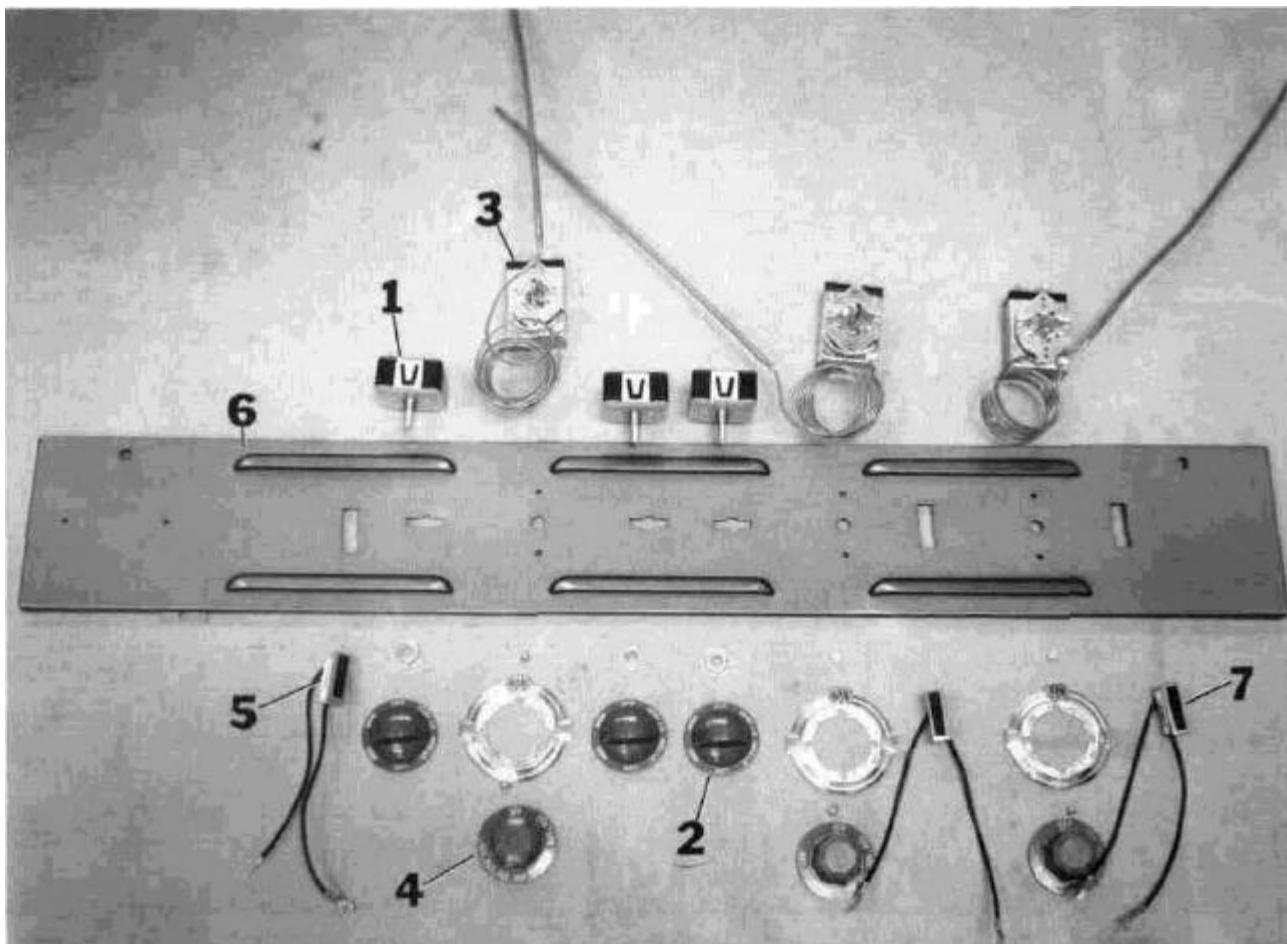
ITEM NO.	DESCRIPTION	PART NO.	QUANTITY
1	Infinite Switch	** 111503-4	7
2	Switch Knob	112251-1	7
3	Thermostat	24146-1	1
4	Thermostat Knob	24155-1	1
5	Indicator Light (oven)	*111496-E5	1
6	Switch Panel Assembly	109472-G1	1
	Switch Panel Assembly (S/S)	109472-G2	1

\* Effective on models constructed after 06/73

\*\* Effective on models constructed after 1975-77

S/S — Stainless Steel

## REPLACEMENT PARTS LIST (Continued)



### SWITCH PANEL ASSEMBLY 208 OR 240 VOLT

USED ON

E-36F SERIES WITH OR WITHOUT SUFFIX "B"

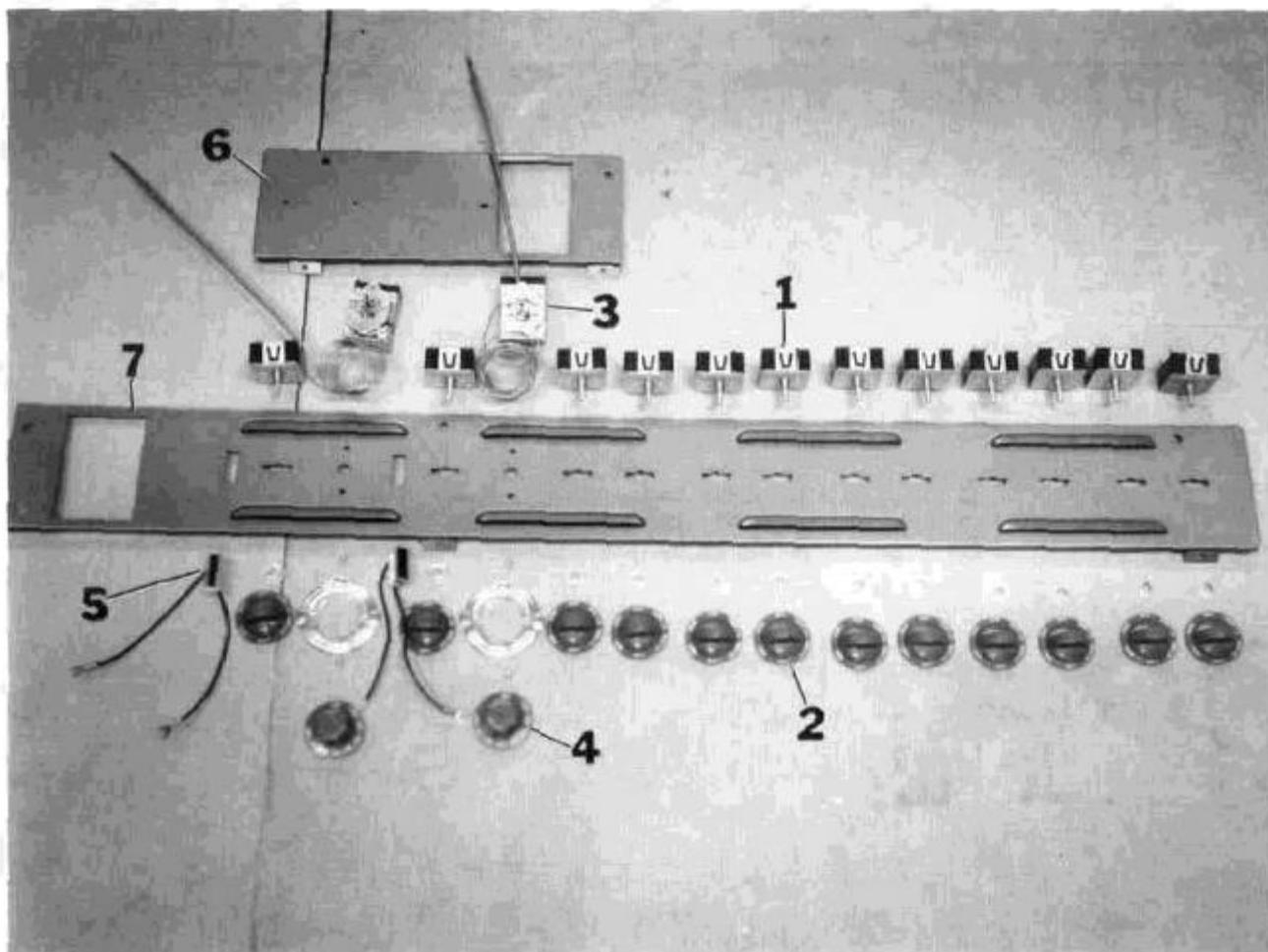
ITEM NO.	DESCRIPTION	PART NO.	QUANTITY
1	Infinite Switch	**111503-4	3
2	Switch Knob	112251-1	3
3	Thermostat	24146-1	3
4	"Thermostat Knob	24155-1	3
5	Indicator Light (oven)	*111496-E5	1
6	Switch Panel Assembly	109466-G1	1
	Switch Panel Assembly (S/S)	109466-G2	1
7	Indicator Light (griddle)	*111496-E4	2

\* Effective on models constructed after 06/73

\*\* Effective on models constructed after 1975-77

(S/S) — Stainless Steel

## REPLACEMENT PARTS LIST (Continued)



### SWITCH PANEL ASSEMBLY 208 OR 240 VOLT

USED ON

E-60 SERIES WITH OR WITHOUT SUFFIX "B"

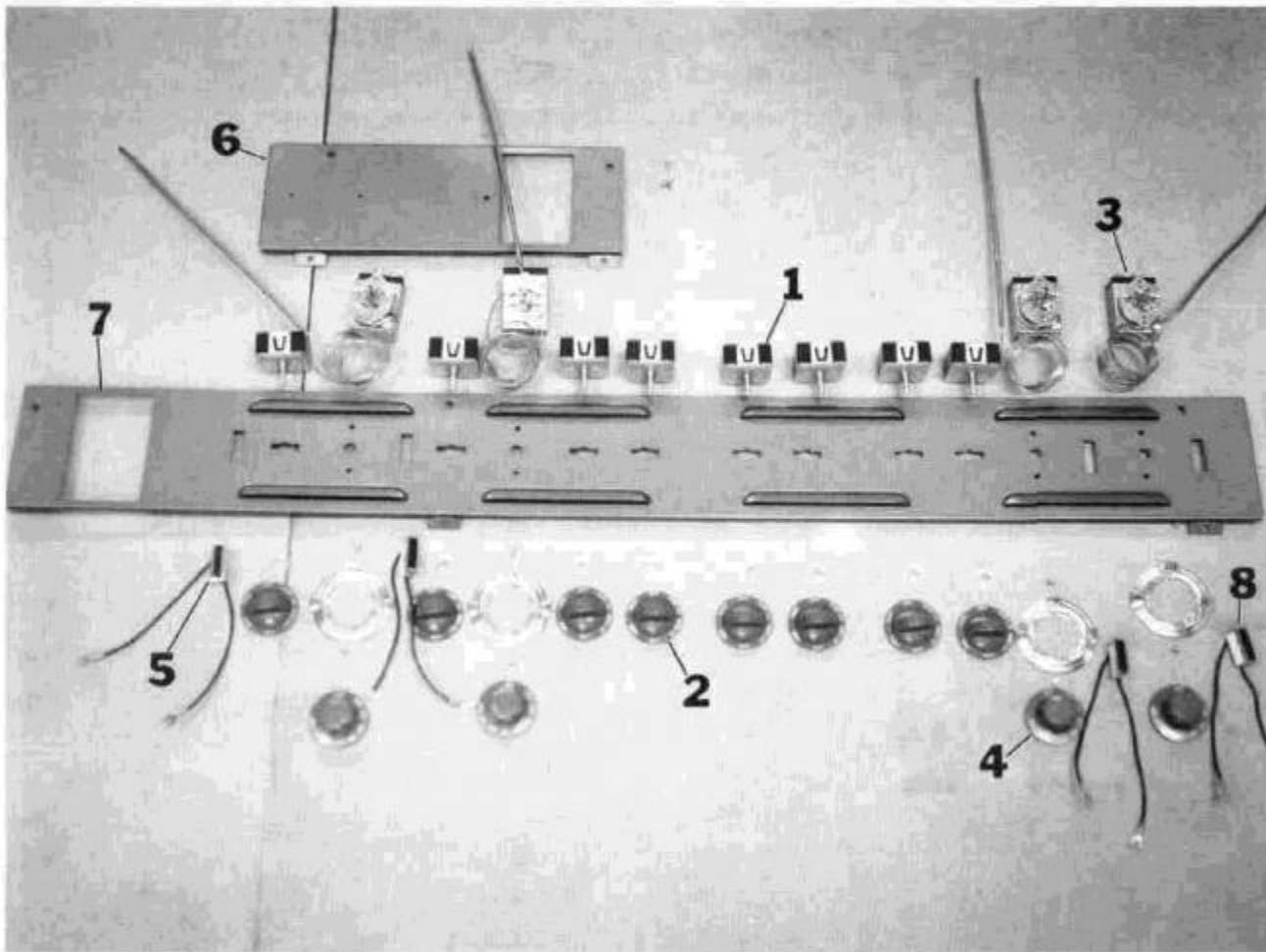
ITEM NO.	DESCRIPTION	PART NO.	QUANTITY
1	Infinite Switch	**111503-4	12
2	Switch Knob	112251-1	12
3	Thermostat	24146-1	2
4	Thermostat Knob	24155-1	2
5	Indicator Light (oven)	*111496-E5	2
6	Switch Panel Assembly (left side)	*112350-G3	1
	Switch Panel Assembly (left side) (S/S)	*112350-G4	1
7	Switch Panel Assembly (right side)	*112351-G1	1
	Switch Panel Assembly (right side) (S/S)	*112351-G2	1
	Breaker Cover Assembly (not shown)	109850-G1	1
	Breaker Cover Assembly (not shown) (S/S)	109850-G2	1

\* Effective on models constructed after 06/73

\*\* Effective on models constructed after 1975-77

(S/S) — Stainless Steel

## REPLACEMENT PARTS LIST (Continued)



### SWITCH PANEL ASSEMBLY 208 OR 240 VOLT

USED ON

E-60F SERIES WITH OR WITHOUT SUFFIX "B"

ITEM NO.	DESCRIPTION	PART NO.	QUANTITY
1	Infinite Switch	**111503-4	8
2	Switch Knob	112251-1	8
3	Thermostat	24146-1	4
4	Thermostat Knob	24155-1	4
5	Indicator Light (oven)	*111496-E5	2
6	Switch Panel Assembly (left side)	*112350-G3	1
	Switch Panel Assembly (left side) (S/S)	*112350-G4	1
7	Switch Panel Assembly (right side)	*112351-G1	1
	Switch Panel Assembly (right side) (S/S)	*112351-G2	1
8	Indicator Light (griddle)	111496-E4	2
	Breaker Cover Assembly (not shown)	109850-G1	1
	Breaker Cover Assembly (not shown) (S/S)	109850-G2	1

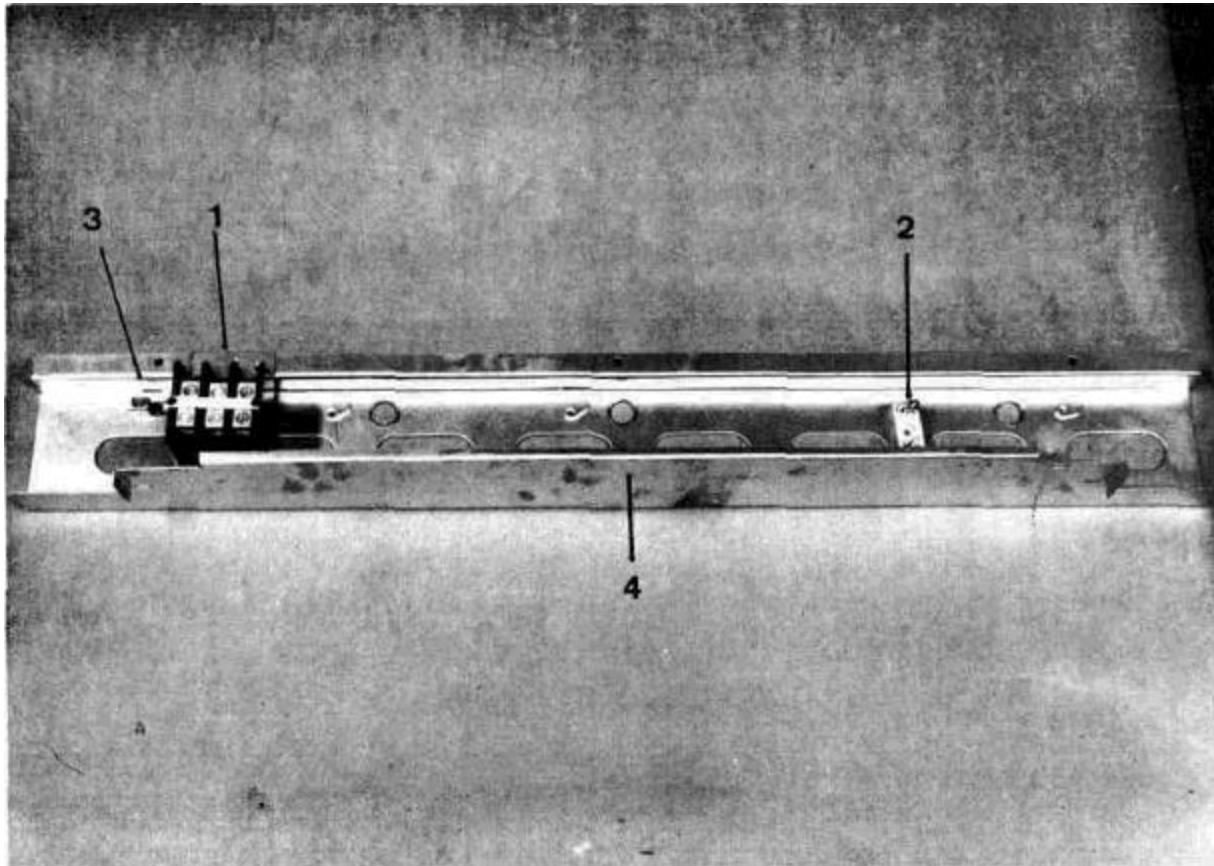
\* Effective on models constructed after 06/73

\*\* Effective on models constructed after 1975-77

(S/S) — Stainless Steel

## **REPLACEMENT PARTS LIST (Continued)**

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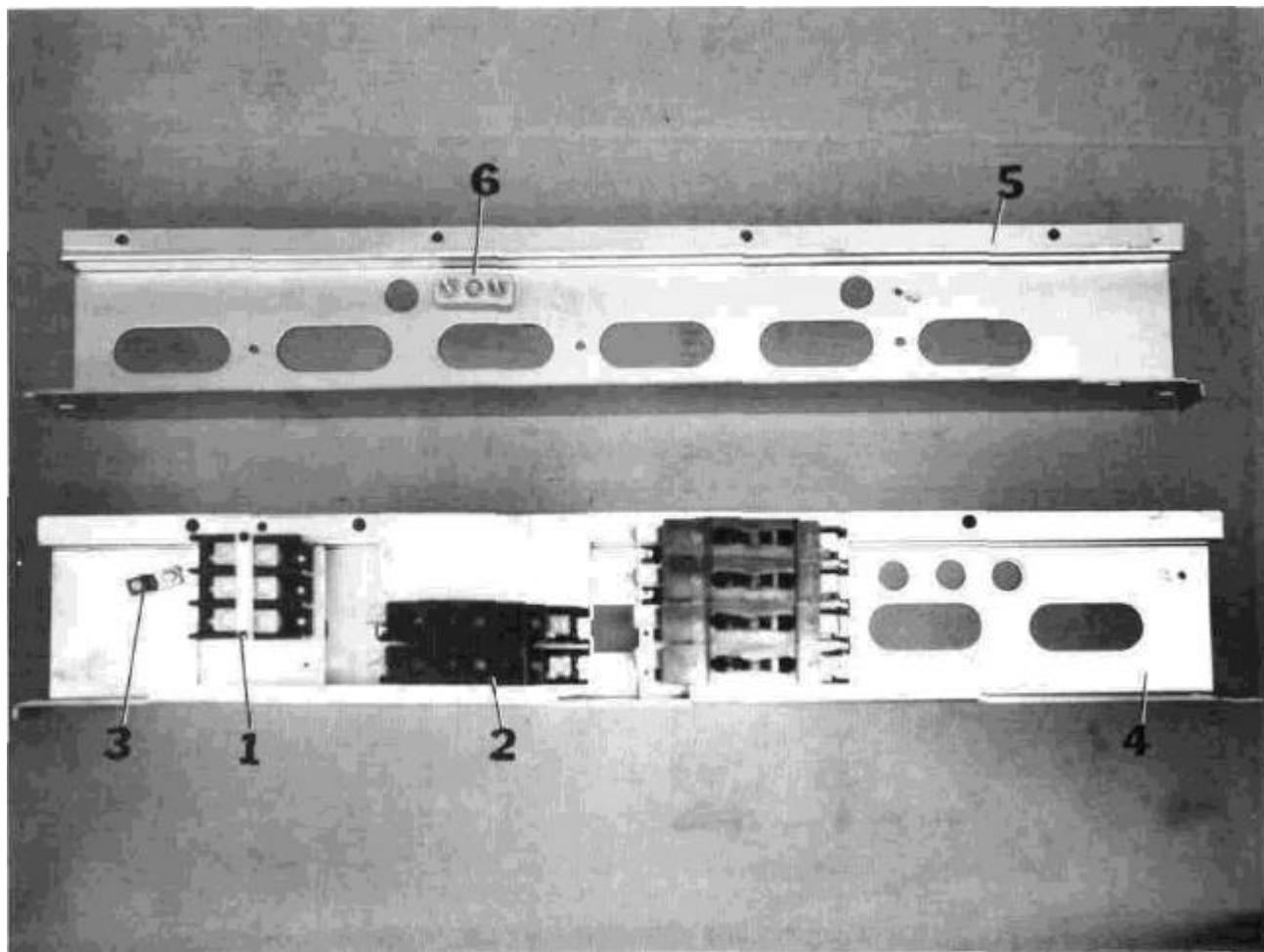


**CONNECTION BLOCK ASSEMBLY 208 OR 240 VOLT  
USED ON  
E-36 SERIES WITH OR WITHOUT SUFFIX "F" OR "B"**

ITEM	DESCRIPTION	PART NO.	QUANTITY
1	Terminal Block	* 110472-8	1
2	Porcelain Block	417934-G1	1
3	Ground Lug	3-1500/06089	1
4	Control Housing Assembly	109469-G1	1

\* Effective on models constructed after 4/72

## REPLACEMENT PARTS LIST (Continued)



### CONNECTION BLOCK ASSEMBLY 208 OR 240 VOLT

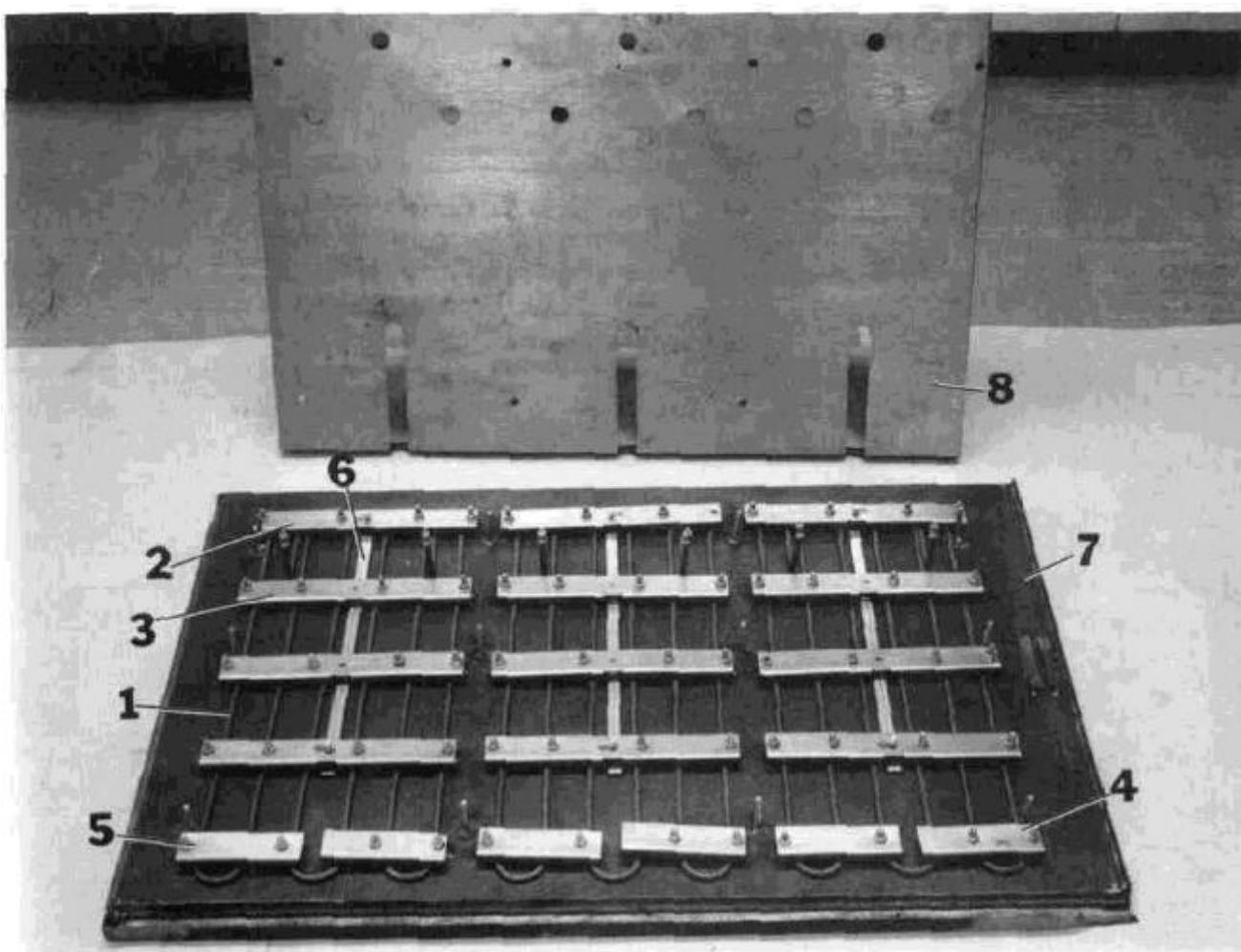
USED ON

E-60 SERIES WITH OR WITHOUT SUFFIX "F" OR "B"

ITEM NO.	DESCRIPTION	PART NO.	QUANTITY
1	Terminal Block	*110472-11	1
2	Circuit Breaker E-60 & E-60-F	*111501-14	6
	Circuit Breaker E-60-B & E-60-FB	111501-14	8
3	Ground Lug	3-1500/06089	1
4	Left Control Housing Assembly	106572-G1	1
5	Right Control Housing	108316-G1	1
6	Porcelain Block E-60F models	00081	1
	E-60 models	00081	2
7	Nylon Insulator Bushing (not shown)	112263-2	6
8	Breaker Closure (not shown)	111904-1	1

\* Effective on models constructed after 05/72

## **REPLACEMENT PARTS LIST (Continued)**

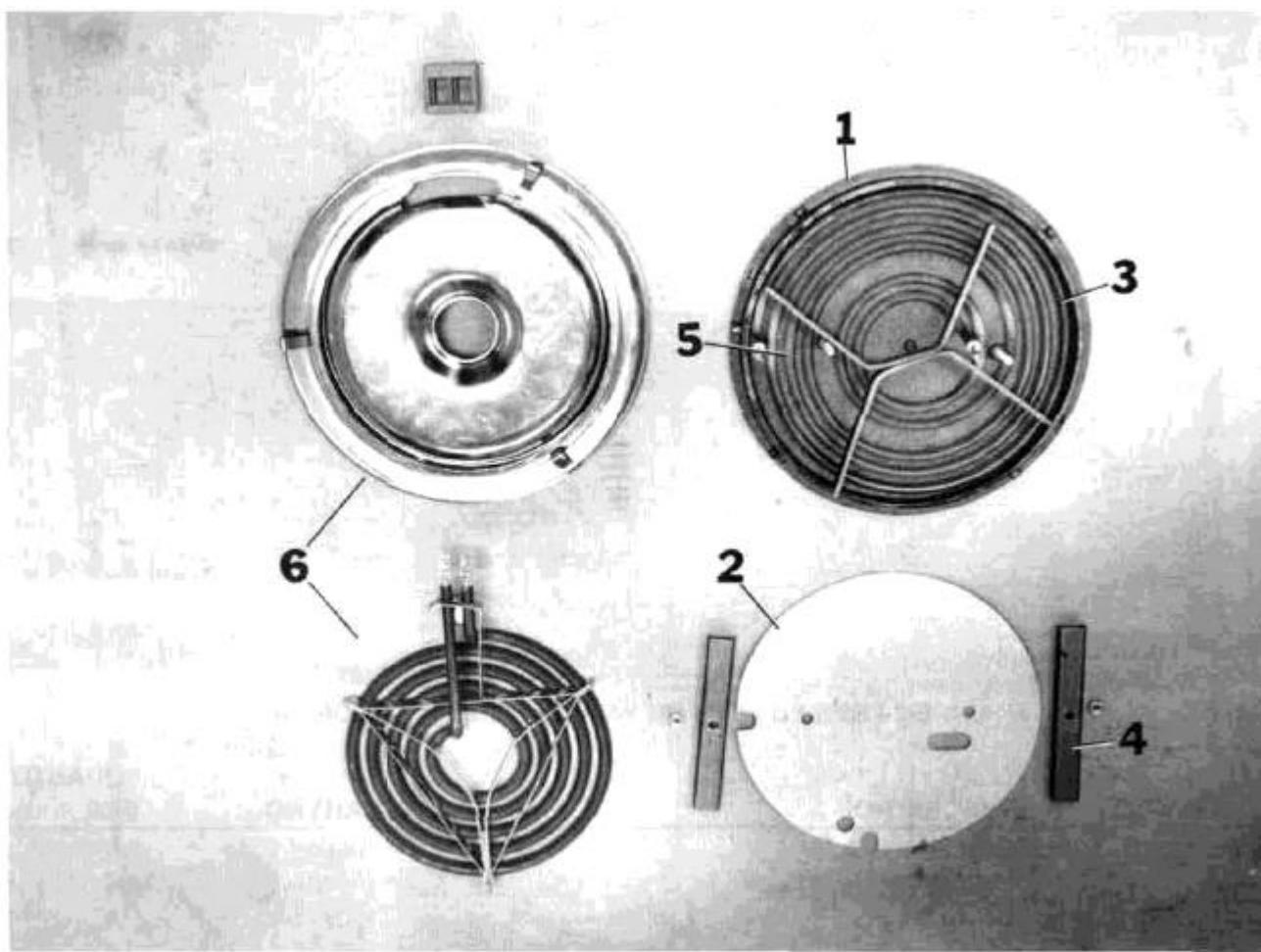


**24" FRY PLATE ASSEMBLY 208 OR 240 VOLT  
USED ON  
E-60F & E-36F SERIES WITH OR WITHOUT SUFFIX "B"**

ITEM NO.	DESCRIPTION	PART NO.	QUANTITY
1	Griddle Element 208 Volt	107774-1	2
	240 Volt	107774-2	2
2	Griddle Element Clamp Assembly	106586-G1	4
3	Griddle Clamp Regular	106586-1	4
4	Griddle Clamp, back assembly	* 106586-4	2
5	Griddle Clamp, back assembly	106586-5	2
6	Griddle Thermostat Clamp	106509-1	2
7	24" Fry Plate Assembly 208 Volt	110636-G1	1
	Griddle Element Cover (not shown)	108283-1	1
7A	24" Fryplate Assembly 240 Volt	110636-G2	1
7B	25" Fry Plate Assembly (Not Shown)	106594-G1	1

\* Effective on models constructed after 03/73

## REPLACEMENT PARTS LIST (Continued)



### FRENCH PLATE ASSEMBLY 208 OR 240 VOLT

USED ON

MODELS: E-36 & E-60

ITEM NO.	DESCRIPTION	PART NO.	QUANTITY	
			E-60	E-36
1	Surface Element Plate	107642-1	10	6
2	Surface Element Cover	24153-1	10	6
3	Element (208 Volt) (240 Volt)	*110911-1 *110911-2	10	6
	Spider Assembly (NS)	107791-G1	10	6
4	Stud (10-24 x 1 3/4 Long)	3.0140-1	20	12
5	Aeration Plate Assembly	108289-G1	5	3
6	Hi Speed Unit (208 Volt) (240 Volt)	24097-20G1 24097-21G1	1	1
6A	French Plate Assembly (208 Volt) (NS)	*112589-G1	10	6
6B	French Plate Assembly (240 Volt) (NS)	*112589-G2	10	6

Effective on models constructed after 1/19/73

(NS) — Not Shown

# **REPLACEMENT PARTS LIST (Continued)**

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**DOOR MECHANISM**  
**USED ON**  
**E-60 & E-36 SERIES WITH OR WITHOUT SUFFIX "F" OR "B"**

ITEM NO.	DESCRIPTION	PART NO.	QUANTITY	
			E-60	E-36
97	Bell Crank Link	105618-1	4	2
185	Bell Crank Support	105606-1	4	2
186	Bell Crank Pin	103971-1	4	2
187	Bell Crank	103956-1	4	2
188	Cotterpin	10597	4	2
190	Oven Door Spring	104053-2	4	2
191	turnbuckle	12932	2	1
192	Bell Crank Stiffner	107497-1	4	2
	Oven Door Assembly (NS)	103954-G1	2	1
	Oven Door Assembly (NS) (SS)	103954-G2	2	1
	Oven Door Panel (NS)	103979-8	2	1
	Oven Door Panel (NS) (SS)	103979-9	2	1
	Door Lining (NS)	103975-1	2	1
	Oven Door Frame Assembly (NS)	103949-G1	2	1
	Support for Hinge Pin (NS)	103981-1	4	2
	Vulcan Nameplate (NS)	112957-1	2	1
	Tinnerman Speed Nut	104013-1	4	2
	Oven Door Handle (NS)	111029-1	2	1
	Door Insulation (NS)	104092-4	2	1
	Hinge Pin (NS)	103981-1	4	2
	Hex Head Bolt (NS)	104083-3	8	4

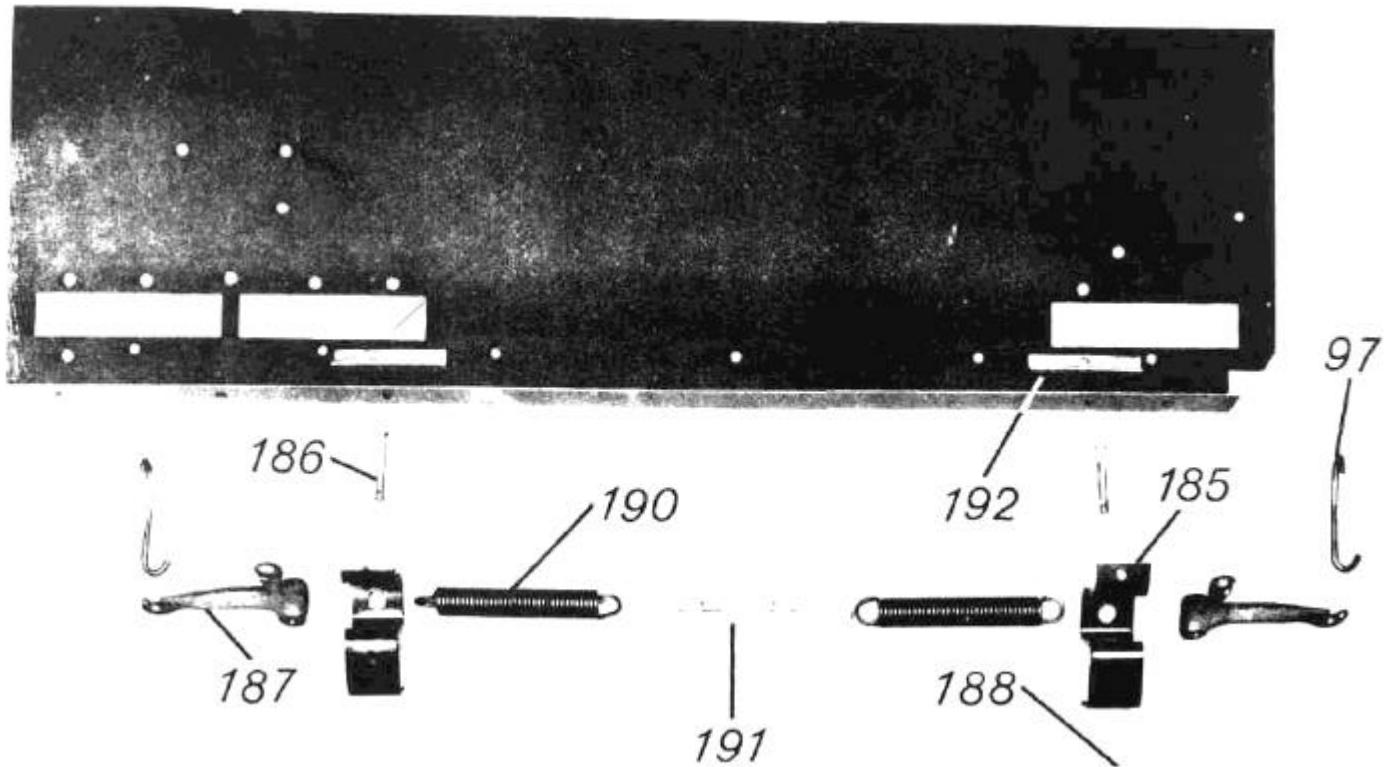
(NS) — Not Shown

(SS) — Stainless Steel

NOTE: Reference photo shown on opposite page viewed from bottom of unit.

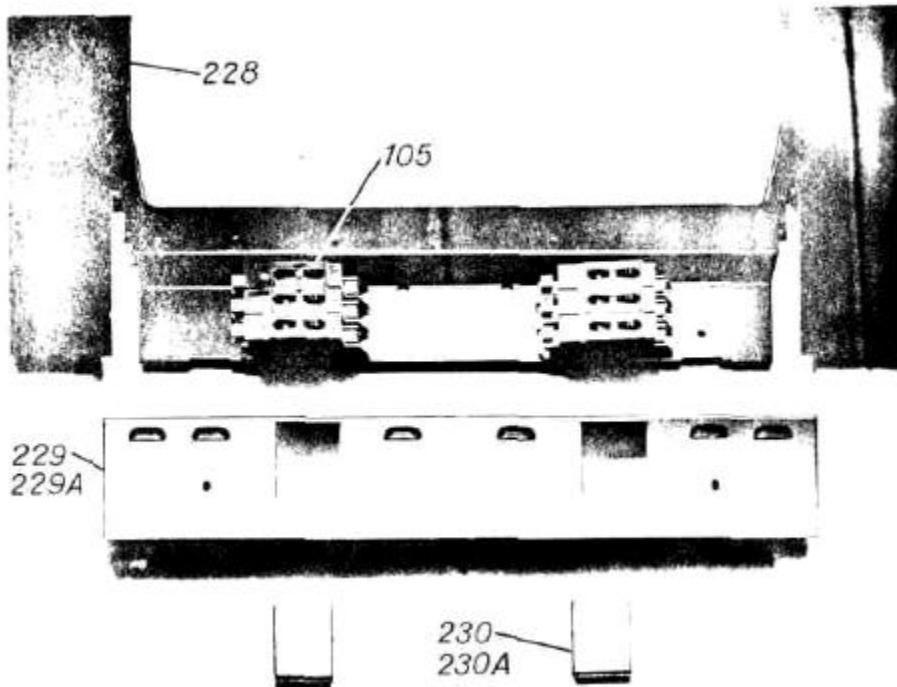
## **REPLACEMENT PARTS LIST (Continued)**

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**DOOR MECHANISM**

## REPLACEMENT PARTS LIST (Continued)



### LOWER PANEL & BREAKER ASSEMBLY 208 OR 240 VOLT

USED ON

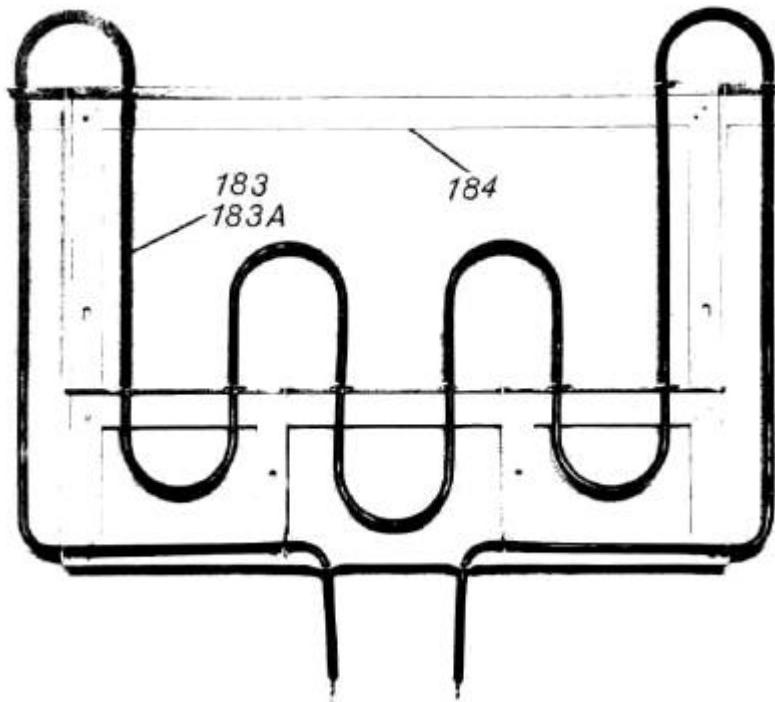
E-36 SERIES WITH OR WITHOUT SUFFIX "F" OR "B"

ITEM NO.	DESCRIPTION	PART NO.	QUANTITY
105	Circuit Breaker (50 Amp)	111501-14	6
229	Lower Panel Assembly	109474-G1	1
229A	Lower Panel Assembly (SS)	109474-G2	1
230	Lower Closure Piece	109477-1	2
230A	Lower Closure Piece (SS)	109477-2	2

(SS) — Stainless Steel

## REPLACEMENT PARTS LIST (Continued)

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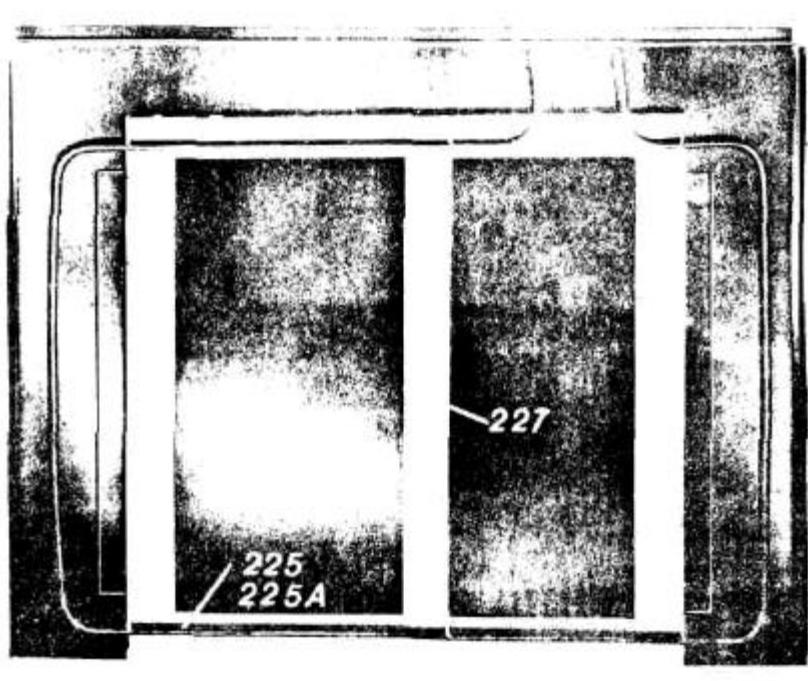
**BOTTOM OVEN ELEMENT & ELEMENT FRAME ASSEMBLY 208 OR 240 VOLT  
USED ON  
E-36 & E-60 SERIES WITH OR WITHOUT SUFFIX "F" OR "B"**

ITEM NO.	DESCRIPTION	PART NO.	QUANTITY	
			E-60	E-36
183	Bottom Oven Element 208 Volt	107775-1	2	1
183A	Bottom Oven Element 240 Volt	107775-2	2	1
184	Bottom Insulation Liner Assembly	106561-G1	2	
184A	Bottom Insulation Liner Assembly Element Clamps (NS)	106561-G2 112925-1		1 14
	Oven Bottom (NS)	103986-3	2	1
	Oven Rack (NS)	12718	2	1
	Oven Gasket (NS)	111791-1	2	1
	Oven Frame (NS)	106592-2	2	1

(NS) - Not Shown

## REPLACEMENT PARTS LIST (Continued)

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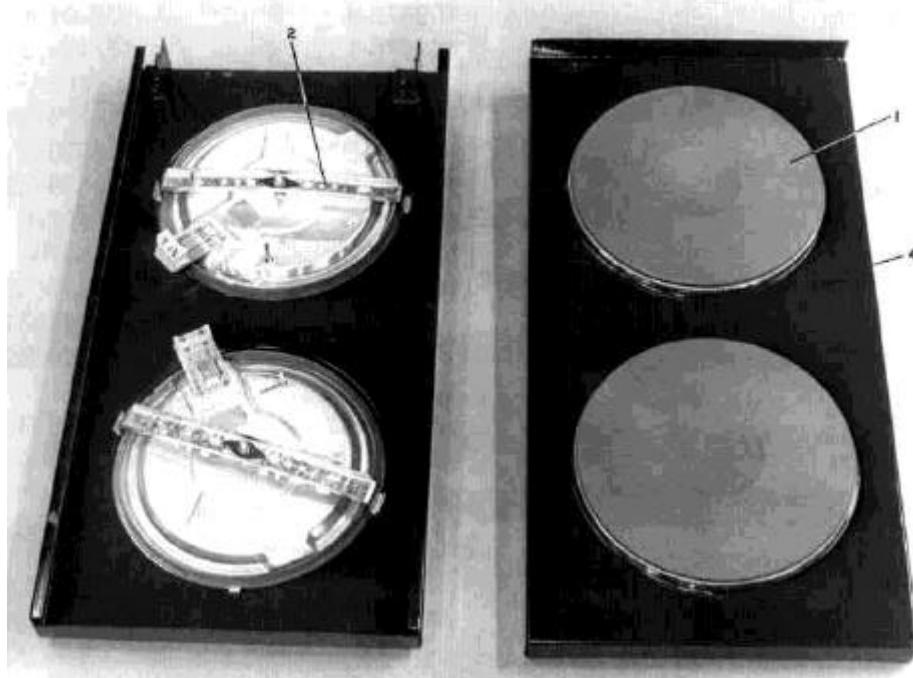


TOP OVEN ELEMENT & ELEMENT FRAME ASSEMBLY 208 OR 240 VOLT  
USED ON  
E-36 & E-60 SERIES WITH OR WITHOUT SUFFIX "F" OR "B"

ITEM NO.	DESCRIPTION	PART NO.	QUANTITY	
			E-60	E-36
225	Top Oven Element 208 Volt	3.1104-7	2	1
225A	Top Oven Element 240 Volt	3.1104-8	2	1
227	Top Insulation Liner Assembly Element Clamp	10657-G1 112925-1	2 10	1 5

## **REPLACEMENT PARTS LIST (Continued)**

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**FRENCH PLATE**  
**USED ON**  
**E-60 & E-36 SERIES**

<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>PART NO.</b>
1	French Plate 208V	115050-1
1A	French Plate 240V (NS)	115050-2
1B	French Plate 480V (NS)	115050-3
1C	French Plate 220V (NS)	115050-4
1D	French Plate 380V (NS)	115050-5
2	Clamp	115048-1
3	Aeration Plate E-36 & E-60 (NS)	108289-G1
3A	Aeration Plate E-36 & E-60 (NS) (SS)	108289-G2
4	Aeration Plate VS-3, -4, -6	24091-G3
4A	Aeration Plate VS-3, -4, -6 (NS) (SS)	24091-G4
5	Jumper Strap 480 Volts Only (NS)	115049-1

For use with all units produced after 11/7/83

(NS) — Not Shown

(SS) — Stainless Steel

# **REPLACEMENT PARTS LIST (Continued)**

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## **BASIC BODY PARTS**

DESCRIPTION	PART NO.	
	E-60 SERIES	E-36 SERIES
Body Back	111116-1	108282-1
Right Body Side	109475-2	108291-2
Right Body Side (SS)	109475-4	108291-4
Left Body Side	109475-1	107169-G3
Left Body Side (SS)	109475-3	107169-G4
Front Top Assy.	109471-G1	108366-G1
Grease Collector Support	113539-G1	113539-G1
Grease Collector Support (SS)	113539-G2	113539-G2
Grease Collector	113507-1	113507-1
Grease Collector (SS)	113507-2	113507-2
Oven Rack	101445/12718	101445/12718
Right Burner Tray Assy.		108324-G1
Left Burner Tray Assy.		108324-G2
Burner Tray Assy.	107115-G1	
Splasher Back Assy.	107105-G1	107105-G9
Splasher Back Assy. (SS)	107105-G2	107105-G10
Shelf Assy.	111841-G3	111841-G1
Shelf Assy. (SS)	111841-G4	111841-G2

SS — Stainless Steel

**MANUAL ASSEMBLY: 112674-1**

**INSTALLATION, SERVICE & PARTS FOR E-36 & E-60**

**ELECTRIC RESTAURANT RANGES**

SIGN	MANUAL 112674-1 SUB NO.	SHEET PART NUMBER AFFECTED	DATE
DML	3		07-02-82
DML	4		02-20-84
DML	5		05-00-84
DML	6	112674-1-30	10-06-86